

Resources Request Examples

Category: PBS on Columbia

DRAFT

This article is being reviewed for completeness and technical accuracy.

All of the Columbia compute engines, Columbia21-24, are single system image Altix 4700 systems:

```
Columbia21 (508 CPUs total, 1.8 GB memory/CPU through PBS)
Columbia22 (2044 CPUs total, 1.8 GB memory/CPU through PBS)
Columbia23 (1020 CPUs total, 1.8 GB memory/CPU through PBS)
Columbia23 (1020 CPUs total, 1.8 GB memory/CPU through PBS)
```

Here are a few examples of requesting resources on Columbia:

Example 1:

If your job needs fewer than 508 CPUs and you do not care which Columbia system to run your job on, simply use *ncpus* to specify the number of CPUs that you want for your job. For example:

```
#PBS -l ncpus=256
```

Example 2:

If you specify both the *ncpus* and *mem* for your job, PBS will make sure that your job is allocated enough resources to satisfy both *ncpus* and *mem*. For example, if you request 4 CPUs and 14 GB of memory, your job will be allocated 8 CPUs and 14.4 GB because the amount of memory associated with 4 CPUs is not enough to satisfy your memory request.

```
#PBS -l ncpus=4,mem=14GB
```

Example 3:

If you want your job to run on a specific Columbia machine, for example, Columbia22 with 256 CPUs, use

```
#PBS -l select=host=columbia22:ncpus=256
```

Note that the *ncpus* request must appear with the *select=host* request and must not be present as a separate request either on the *qsub* command line or in the PBS script.

Example 4:

If you ever need to run a job across two Columbia systems, for example, 508 CPUs on one Columbia and another 508 CPUs on another, use

```
#PBS -l select=2:ncpus=508,place=scatter
```

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<http://www.nas.nasa.gov/hecc/support/kb/entry/194/?ajax=1>